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ABSTRACT

A study assessed the relationship between formal main idea statements in text and substantive material that students need to understand the key concepts in textbooks. The study addressed two questions: (1) What percentage of textbook paragraphs contains material important for understanding major textbook concepts? and (2) How important are formal main ideas for a substantive understanding of textbook material? Chapters from three textbooks representing mainstream sociology texts were examined. Areas covered by the chapters include culture, the family, and social inequality, topics treated somewhat uniformly in most mainstream textbooks. To distinguish between "substantive" and "useful" material, the number of paragraphs in each chapter containing substantive material was compared with the total number of paragraphs in each chapter. Location of paragraphs without substantive material and the kind of material contained therein were also noted. Results of analysis indicated that large numbers of paragraphs contained no substantive ideas; the importance of finding main ideas, which were significant 79% to 91% of the time; and the need to study supporting details in order to gain understanding of important material. In most of the paragraphs containing important information, one or more supporting details were needed to understand what was being said, while the formal main idea was sometimes too general and contained little of value for understanding the subject matter. (HTH)

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The Relation of Formal Main Ideas to Substantive Textbook Material

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Abstract

The purpose of this article is to investigate the relationship between formal main ideas -- those fitting traditional definition of main idea -- and substantive textbook material. In a 1985 study, Ashton, O'Hear, and Pherson had established that authors of sociology textbooks explicitly stated main ideas for most textbook paragraphs and that multiple clues pointed the way to these main ideas. It remained to be determined whether these formal main ideas really pointed to substantive material. The present study, using the same texts and chapters as those covered in Ashton, O'Hear, and Pherson's research, indicates that formal main ideas are strongly related to the substantive material in textbook chapters.

THE RELATION OF FORMAL MAIN IDEAS TO SUBSTANTIVE TEXTBOOK MATERIAL

Although there exists some disagreement about the importance of locating main ideas for effective reading, this skill has long been taught in college developmental reading courses. This study does not attempt to evaluate the relative merit of specific skills instruction as opposed to other means of teaching reading. Rather, its purpose is to assess the relationship between formal main idea statements in college textbooks and substantive material -- material that students need to learn to understand the key concepts in textbook chapters.

Review of the Literature

A recent study of thirteen developmental reading texts (Ashton, O'Hear, & Pherson, 1985) identified eight different clues for locating main ideas (first position, last position, examples, repetition, key words/numbers, subheadings, second position, and highlighting). Using a literal count of clues used in all paragraphs in selected chapters of sociology textbooks, Ashton,

O'Hear, and Pherson determined that, while developmental reading texts did not agree on the number or relative importance of main idea clues, all eight clues worked in finding formal main ideas -- sentences that met the traditional requirements for main ideas.

Specifically, they found that, beyond first sentence in paragraph (which was the location of the main idea in 52.9% of the paragraphs tested) and last sentence in paragraph (the location of main ideas in 18.8% of paragraphs), the importance of other clues was greater than indicated by developmental reading texts. Examples (67.8%), repetition (36.6%), key words/numbers (25.2%), subheadings (25.1%), second sentence in paragraph (15.9%), and highlighting (11.8%) were found to be important clues. Only 5.1% of the paragraphs in texts studied had no clues to formal main ideas. In fact, the study found that most paragraphs contained two or more clues to point to the main idea.

Beyond the Ashton, O'Hear, and Pherson study of formal main ideas, there has been no recent study of the importance of main ideas in college textbooks. Braddock (1974) studied main ideas in articles by popular writers. He concluded that formal main ideas were frequently not directly stated, although he wished they were. Moore and Readence (1980) go so far as stating that main ideas are seldom directly stated except in reading improvement materials. However, their only real evidence is the Braddock study, which says nothing about college textbooks. Other studies, including Alexander (1975) and Axelrod (1976) indicate the importance of main ideas. Baumann (1983), in his review of research on

principles of reading instruction, lists locating main ideas as a comprehension strategy to teach. Even Moore and Readence admit the importance of finding main ideas. However, they think of finding main ideas more as an analytic skill than one of finding material directly stated.

But are these formal main ideas of substantive value as well? That is, do main idea clues truly guide the reader to ideas critical for comprehension of important material in textbooks?

Research Questions

The research questions addressed in this study are two. First, what percentage of textbook paragraphs contain material important for understanding major textbook concepts? Second, how important are formal main ideas for a substantive understanding of textbook material? It is necessary, of course, to ascertain which paragraphs contain important material first, for if a paragraph contains no important information, locating its main idea would be a superfluous exercise.

For the purpose of this study, a formal main idea is defined (as in the Ashton, O'Hear, & Pherson study, 1985) as that sentence which is general enough to include all of the information provided in a paragraph, but not so general as to be useless to those trying to understand the paragraph. A main idea must be a statement. It can never be a question because, although a question can focus on the subject of a paragraph, it contains no controlling idea to establish what will be said about the subject.

Substantive here means critical to an understanding of central textbook topics. Thus, it is possible for a textbook to have paragraphs containing formal main ideas (sentences conforming to the definition listed above), but not containing material students will need to know for understanding critical text ideas.

Research Method

In investigation of these questions, the present researchers chose to use the same sociology textbooks and chapters used by Ashton, O'Hear, and Pherson (1985) in their study of formal main ideas. The books used were: DeFleur, M.L., D'Antonio, W.V., & DeFleur, L.B. (1984). Sociology human society (4th ed.). New York: Random House; Robertson, I. (1981). Sociology (2nd ed.). New York: Worth; Tischler, H.L., Whitten, P., & Hunter, D.E.K. (1983). Introduction to Sociology. New York: Holt, Rinehart and Winston. (These books will hereafter be referred to by primary author.) These texts were originally chosen because they are among the best selling introductory sociology texts on the market and because their format and material presentation are typical of mainstream texts in sociology aimed at a university/liberal arts college audience. As in the Ashton, O'Hear and Pherson study, chapters examined were those on culture, the family, and social inequality, topics important in all introductory sociology courses and treated somewhat uniformly in most mainstream textbooks, including those listed.

Ashton, O'Hear, and Pherson (1985) had identified formal main ideas -- or lack thereof-- for all paragraphs (except chapter summaries) in the relevant chapters of these textbooks. Now the present researchers, a sociology professor and a reading specialist, established criteria for substantive material. These guidelines were verified by a second sociology professor. The researchers read the three chapters from each book independently, looking for substantive material. The researchers initially read and underlined this material. When a comparison brought to light disagreements, analysis of the differences resulted in modification of criteria. This procedure follows guidelines suggested by Borg and Gall (1979) for establishing inter-rater reliability.

At this point, it is necessary to further distinguish between "substantive" and "useful" material. The criteria for determining what material is substantive are probably easier to see by looking at the kind of material which was considered merely useful. Useful material falls into several categories. Repetition and extended examples (of the non-research variety), research examples which were not treated in detail (e.g., series of research examples in Robertson used to illustrate the relationship of language and culture, p. 73), situation-setters (e.g., several paragraphs in Robertson on language in Orwell's 1984 as an introduction to the linguistic relativity hypothesis, p. 72), and sections not as clearly relavant to sociology as to other subject areas (e.g., material on evolution, language in other animals,

etc.) were all considered as merely useful. Thus, substantive material was that which was clearly related to the comprehension of basic sociological concepts, including definitions, causes/effects, research examples (which were treated in some detail), sociological theories and the facts supporting them, and statements of social conditions.

It should be clear that the researchers are not suggesting that material considered "useful" serves no function in the textbook chapters. Quite the contrary, such material serves necessary functions. Writers do need to arouse interest, provide transitions, etc. However, while these tasks must be accomplished, the paragraphs which fill these purposes usually do not contain material critical to an understanding of the text concepts. To say that students should learn this useful, but unimportant information would be akin to insisting that students write down all the words of a lecture because these words are there. Further, the researchers are not suggesting that this useful material does not aid comprehension of substantive materials any more than they would suggest that individual algebra problems discussed in a lecture had no bearing on comprehension of a specific formula. Rather, it is argued that the point itself is substantive and to be remembered; the other material, regardless of function, needs to be remembered only if the student feels the desire or need to remember it. There is no suggestion here that writers pad text material; rather, the point is that students need to know that certain material is critical to comprehension while

other material is not.

After the researchers located substantive material, findings were analyzed for inter-rater reliability.

The number of paragraphs in each chapter containing substantive material was compared with the total number of paragraphs in each chapter. Note was taken of where paragraphs without substantive material were located and what kind of material was contained therein. Then data on substantive material was compared with data from Ashton et al. (1985) on formal main ideas. Tallies were made of those paragraphs in which only the main idea was important, those in which the main idea and other material were important, and those in which the formal main idea was not important. Note that it is possible for a sentence to fulfill the formal definition of a main idea while not containing substantive material. This occurred most frequently in paragraphs with main ideas too general to be of use to a reader.

Results

The first question to be considered is that of inter-rater reliability. Borg and Gall (1979) indicate that raters should confer among themselves to establish criteria and then to modiify these criteria as needed. A 70% to 80% agreement on important material is needed to fall within the range of reliability. Table 1 presents data on reader agreement for this study.

Insert Table 1 about here.

As the table indicates, inter-rater agreement was far higher than that needed to establish reliability. Based on this agreement, the researchers tabulated the number of paragraphs containing substantive material. Results of this tabulation appear in Table 2.

Insert Table 2 about here.

Table 2 indicates that large numbers of paragraphs in given chapters contained no substantive ideas. Interestingly, Tischler and Robertson both had two chapters with substantive material in 55% to 70% of the paragraphs. Each also had one chapter with substantive material in roughly 80% of the paragraphs. This discrepancy indicates that textbook chapters may vary in the amount of substantive material they contain. Again, it is crucial to remember the distinctions between substantive and useful material made earlier.

Table 2 indicates that DeFleur presented an interesting contrast to the other two books. Two chapters of DeFleur were similar to those of the other books with important material in 56% to 68% of the paragraphs. However, the third chapter (on culture) contained important material in only 27% of the paragraphs. This was due, in part, to a long, chatty example of life at the Air Force Academy, which contained no really important material.

It is important to note that, despite the style difference, all texts contained the same type of important material. In fact, the substantive material presented varied only slightly from text to text.

A detailed exploration of a textbook chapter will contribute to a better understanding of the distribution of important and merely useful material. Tischler's chapter on culture (Chapter 3, pp. 68-101) contains significant material in 58.6% of the paragraphs (51 out of 87). The chapter begins with an interest-raiser detailing the history of our species followed by an outmoded definition of culture; neither of these qualify as important material according to the study's criteria. Next comes the important definition of culture and its meaning. A discussion of biological needs follows. This in itself has little to do with important sociological concepts, though it sets a background for discussing culture.

Then comes a lengthy discussion of culture traits. Only four paragraphs in this section are considered unimportant by our criteria. These are used to give added examples to support key concepts located in other paragraphs. There follows a lengthy discussion of biological and cultural evolution, in effect a background section dealing with topics more directly connected with biology and anthropology than with sociology, and thus considered unimportant.

However, as soon as the discussion turns to sociologically important definitions, substantive material predominates over

several pages with only one example paragraph appearing as unimportant through the definition of the Sapir-Whorf hypothesis (a particular theory of the relationship of culture and language). This definition is followed by two example paragraphs, one of repetition of points already made, and two on animal language, none of which is critical to understanding the sociological content of the chapter.

Next, subcultures (important material) are defined. However, this discussion is continued at length by detailing types of subcultures (religious, ethnic, etc.), which, while interesting, are supplemental to understanding the core concept of subculture. Counterculture is defined (important), but is followed by a four-paragraph example (unimportant). The rest of the chapter paragraphs deal with other important material on culture, except for two example paragraphs and one on the noble purpose of sociology.

In short, examples, situation-setters, and material more proper to other disciplines -- mainly items which aid chapter readability and provide background -- form the bulk of merely useful material. Indeed, such material fills 41.4% of the chapter paragraphs.

Our second research question dealt with the importance of formal main ideas for substantive understanding of textbook material. Table 3 contains the results of our tally of substantive material.

Insert Table 3 about here.

The figures in Table 3 show a remarkable consistency. Only in DeFleur, whose writing style tends to large generalizations, is there a significant difference. As the table indicates, DeFleur's sections in which only the main idea was important occur with similar frequency to such sections in the other books. DeFleur states main ideas as frequently as Robertson and Tischler do. However, the vagueness of his phrasing makes other, more specific information stand out as substantive while main ideas do not seem as critical to remember.

Table 3 also points to the importance of finding main ideas, as these are significant 79% to 91% of the time. However, the data in Table 3 also make a strong case for the ancillary need to study supporting details in order to gain understanding of important material. In the great majority of paragraphs containing important information, one or more supporting details were needed in order to understand what was being said.

Finally, in some cases, the formal main idea was too general. While it covered the material in the paragraph, it contained little of value to understand the subject matter. For example, in Tischler's discussion of working women (p. 392), we find the main idea sentence, "While further progress is still necessary, a woman's economic potential in the workplace is significantly greater than in the past." This tells the reader what the paragraph is about, but does little to help one understand how

great this potential is or why it has become great -- two important facts appearing later in the paragraph. Thus, the main idea is too general to be of much value. Another example occurs in Tischler's discussion of mate selection (p. 386). He writes, "The age at the time of first marriage is fairly young." Indeed the paragraph does talk about age at time of marriage. But the facts about age of marriage are the critical information, not the vague phrase "fairly young," which is contained in the main idea statement.

When a main idea is too general to be of value, students must learn either to supply their own main idea or to go beyond the formal idea and to abstract from the rest of the paragraph necessary information. However, in textbooks, as opposed to the materials surveyed by Braddock (1974), main ideas are more frequently found to contain substantive information.

Conclusions and Recommendations

1. While developmental reading textbooks frequently indicate to students that all chapters do not have the same concentration of important material, they do not indicate the possibility that large numbers of paragraphs (30% or more) may not have important material in them. Nor do these books indicate the wide discrepancy between amounts of important material possible among chapters in the same book. It seems that students should be made aware of this discrepancy as a reinforcement for the importance of

selective reading. They should be made aware also of the kind of material that they are likely to find in these less important paragraphs as an aid in effective reading.

2. Students need to work on spotting supporting details. Many reading texts today have sections on locating supporting details. In light of the present study, these sections assume major importance if students are to acquire skills needed to read texts effectively and come away with an understanding of the truly important concepts therein.

This paper has dealt with the relationship between substantive information and main ideas in introductory sociology textbooks -- one subject only. Further research of this type is needed with texts in other subject areas as well. Examination of texts for other introductory courses, such as math and writing classes, is particularly needed.

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Table 1

Inter-rater Reliability for Sociology Textbook Chapters

Chapter	DeFleur		Robertson		Tischler		Total
	Agree	Disagree	Agree	Disagree	Agree	Disagree	
Culture	74 (85.1%)	13 (14.9%)	65 (75.6%)	21 (24.4%)	77 (85.6%)	13 (14.4%)	(82.1%)
Family	62 (86.1%)	10 (13.9%)	90 (88.2%)	12 (11.8%)	96 (84.9%)	17 (15.1%)	(86.4%)
Inequality	97 (84.3%)	18 (15.7%)	62 (88.6%)	8 (11.4%)	87 (92.6%)	7 (7.4%)	(86.3%)
Total	233 (85.0%)	41 (15.0%)	217 (84.1%)	41 (15.9%)	260 (87.5%)	37 (12.5%	(85.6%)

Table 3

Relation of Formal Main Idea to Important Material in Paragraphs Containing Significant Information

Book	Only main idea important	Main idea plus other material important	main idea unimportant
DeFleur n=132	26 (19.7%)	78 (59.1%)	28 (21.2%)
Robertson n=167	30 (18.0%)	118 (70.7%)	19 (11.3%)
Tischler n=195	37 (19.0%)	142 (72.8%)	16 (8.2%)
Total n=494	93 (18.8%)	338 (68.4%)	63 (12.8%)

Table 2

Number of Paragraphs Containing Important Information

Book	Paragraphs	Important	Unimportant
DeFleur	274	132 (48.2%)	142 (51.8%)
Robertson	258	167 (64.7%)	91 (35.2%)
Tischler	297	195 (65.7%)	102 (34.3%)
Total	829	494 (59.6%)	335 (40.4%)